

Amendments to the Claims:

1. (Previously presented) A process of generating transgenic plants or plant cells transformed on their plastome, comprising

(a) introducing into plant plastids a first DNA molecule and a second DNA molecule, wherein said first DNA molecule contains a first region homologous to a region of the plastome for directing plastome integration and a first sequence of interest, wherein said first DNA molecule contains only one region homologous to a region of the plastome for directing plastome integration, and said second DNA molecule contains a second region homologous to a region of the plastome for directing plastome integration and a second sequence of interest, whereby a sequence segment of said first sequence of interest is homologous to a sequence segment of said second sequence of interest, wherein said first and said second DNA molecules are introduced into said plant plastids by co-transformation, and

(b) selecting transformants having an integration sequence stably integrated in the plastome, whereby said integration sequence contains at least a portion of said first and at least a portion of said second sequence of interest as a continuous sequence.

2. (Cancelled)

3. (Previously Presented) The process according to claim 1, wherein said first and said second sequences of interest are different from each other.

4. (Previously Presented) The process according to claim 1, wherein said first and said second sequences of interest each contains a further sequence in addition to said sequence segment.

5. (Previously presented) The process according to claim 1, wherein one or more additional DNA molecules are introduced into said plant plastids in addition to said first and said second DNA molecule, whereby said additional DNA molecule(s) comprise(s) additional sequence(s) of interest.

6. (Previously Presented) The process according to claim 5, wherein said additional DNA molecule(s) contain(s) a sequence segment homologous to a sequence segment of said first sequence of interest and a sequence segment homologous to said second sequence of interest.

7. (Previously Presented) The process according to claim 1, wherein said first and/or said second sequence of interest contains one or more genes of interest or fragments of a gene of interest.

8. (Previously Presented) The process according to claim 7, wherein a gene of interest is split into two or more fragments and wherein said first and/or said second sequence of interest contains a fragment of said gene of interest, whereby said gene of interest is assembled from said two or more fragments upon formation of said integration sequence.

9. (Previously presented) The process according to claim 1, wherein said first sequence of interest contains a 5' part of a gene of interest and said second sequence of interest contains a 3' part of said gene of interest and said integration sequence contains said gene of interest such that it can be expressed.

10. (Cancelled)

11. (Previously presented) The process according to claim 1, wherein said first sequence of interest contains a 5' part of a gene of interest and said second sequence of interest contains a 3' part of said gene of interest, wherein said first sequence of interest contains upstream of said 5' part of said gene of interest a sequence element homologous to a sequence element located downstream of said 3' part of said gene of interest of the second sequence of interest, whereby said sequence elements enable excision by homologous recombination of a part of said integration sequence that comprises said 5' and/or said 3' part of said gene of interest.

12. (Previously presented) The process according to claim 7, wherein said gene of interest is a selectable marker gene.

13. (Previously presented) The process according to claim 1, wherein said first or said second DNA molecule contains a selectable marker gene outside of a sequence unit consisting of the region homologous to a region of the plastome and the sequence of interest, for allowing loss of said marker gene.

14. (Previously presented) The process according to claim 1, wherein a selectable marker gene is split into a first and a second fragment, whereby said first fragment is incorporated in said first DNA molecule outside of a first sequence unit and said second fragment is incorporated in said second DNA molecule outside of a second sequence unit, whereby said first sequence unit consists of said first homologous region and said first sequence of interest and said second sequence unit consists of said second homologous region and said second sequence of interest.

15. (Previously presented) The process according to claim 12, wherein said selectable marker gene is aphA-6.

16. (Cancelled)

17. (Previously presented) The process according to claim 1, wherein said first and said second DNA molecule each contain only one region homologous to a region of the plastome for directing plastome integration.

18. (Previously presented) The process according to claim 1, wherein said first and said second homologous region together correspond to a continuous sequence of the plastome to be transformed.

19. (Previously presented) The process according to claim 1, wherein homoplastomic transgenic plants are regenerated from said transformants.

20. (Currently amended) A kit-of-parts comprising a first and a second DNA molecule, ~~as defined in claim 1,~~ wherein said first DNA molecule contains a first region homologous to a region of the plastome for directing plastome integration and a first sequence of interest, wherein said first DNA molecule contains only one region homologous to a region of the plastome for directing plastome integration, and said second DNA molecule contains a second region homologous to a region of the plastome for directing plastome integration and a second sequence of interest, whereby a sequence segment of said first sequence of interest is homologous to a sequence segment of said second sequence of interest.

21-22. (Cancelled)

23. (Currently amended) A plant or plant cell transformed ~~with said DNA molecules of said kit of parts according to claim 20,~~ a first and a second DNA molecule, wherein said first DNA molecule contains a first region homologous to a region of the plastome for directing plastome integration and a first sequence of interest, wherein said first DNA molecule contains only one region homologous to a region of the plastome for directing plastome integration, and said second DNA molecule contains a second region homologous to a region of the plastome for directing plastome integration and a second sequence of interest, whereby a sequence segment of said first sequence of interest is homologous to a sequence segment of said second sequence of interest.

24. (Currently amended) A plant or plant cell obtained according to ~~the a~~ process of ~~claim 1,~~ comprising

_____ (a) introducing into plant plastids a first DNA molecule and a second DNA molecule, wherein said first DNA molecule contains a first region homologous to a region of the plastome for directing plastome integration and a first sequence of interest, wherein said first DNA molecule contains only one region homologous to a region of the plastome for directing plastome integration, and said second DNA molecule contains a second region homologous to a region of the plastome for directing plastome integration and a second sequence of interest, whereby a sequence segment of said first sequence of interest is homologous to a sequence segment of said second sequence of interest, wherein said first and said second DNA molecules are introduced into said plant plastids by co-transformation, and

_____ (b) selecting transformants having an integration sequence stably integrated in the plastome, whereby said integration sequence contains at least a portion of said first and at least a portion of said second sequence of interest as a continuous sequence.

25. (Currently amended) A seed obtained from ~~said a plant, of claim 24: said plant~~
obtained according to a process comprising

(a) introducing into plant plastids a first DNA molecule and a second DNA molecule, wherein said first DNA molecule contains a first region homologous to a region of the plastome for directing plastome integration and a first sequence of interest, wherein said first DNA molecule contains only one region homologous to a region of the plastome for directing plastome integration, and said second DNA molecule contains a second region homologous to a region of the plastome for directing plastome integration and a second sequence of interest, whereby a sequence segment of said first sequence of interest is homologous to a sequence segment of said second sequence of interest, wherein said first and said second DNA molecules are introduced into said plant plastids by co-transformation, and

(b) selecting transformants having an integration sequence stably integrated in the plastome, whereby said integration sequence contains at least a portion of said first and at least a portion of said second sequence of interest as a continuous sequence.

26. (Previously presented) A process of generating transgenic plants or plant cells transformed on their plastome, comprising

(a) introducing into plant plastids a first DNA molecule and a second DNA molecule, wherein said first DNA molecule contains a first region homologous to a region of the plastome for directing plastome integration and a first sequence of interest, and said second DNA molecule contains a second region homologous to a region of the plastome for directing plastome integration and a second sequence of interest, whereby a sequence segment of said first sequence of interest is homologous to a sequence segment of said second sequence of interest, wherein said first and said second DNA molecules are introduced into said plant plastids by co-transformation, and

(b) selecting transformants having an integration sequence stably integrated in the plastome, whereby said integration sequence contains at least a portion of said first and at least a portion of said second sequence of interest as a continuous sequence.

27. (Previously Presented) A process of generating transgenic plants or plant cells transformed on their plastome, comprising

(a) introducing into plant plastids a first DNA molecule and a second DNA molecule, wherein said first DNA molecule contains a first region homologous to a region of the plastome for directing plastome integration and a first sequence of interest, and said second DNA molecule contains a second region homologous to a region of the plastome for directing plastome integration and a second sequence of interest, whereby a sequence segment of said first sequence of interest is homologous to a sequence segment of said second sequence of interest, and wherein said first and said second DNA molecules each contains only one region homologous to a region of the plastome for directing plastome integration, and

(b) selecting transformants having an integration sequence stably integrated in the plastome, whereby said integration sequence contains at least a portion of said first and at least a portion of said second sequence of interest as a continuous sequence.

28. (Previously presented) A process of generating transgenic plants or plant cells transformed on their plastome, comprising

(a) introducing into plant plastids a first DNA molecule and a second DNA molecule, wherein said first DNA molecule contains a first region homologous to a region of the plastome for directing plastome integration and a first sequence of interest, wherein said first DNA molecule contains only one region homologous to a region of the plastome for directing plastome integration, and said second DNA molecule contains a second region homologous to a region of the plastome for directing plastome integration and a second sequence of interest, whereby a sequence segment of said first sequence of interest is homologous to a sequence segment of said second sequence of interest, wherein said first sequence of interest contains a 5' part of a gene of interest and said second sequence of interest contains a 3' part of said gene of interest, wherein said first sequence of interest contains upstream of said 5' part of said gene of interest a sequence element homologous to a sequence element located downstream of said 3'

part of said gene of interest of the second sequence of interest, whereby said sequence elements enable excision by homologous recombination of a part of said integration sequence that comprises said 5' and/or said 3' part of said gene of interest, and

(b) selecting transformants having an integration sequence stably integrated in the plastome, whereby said integration sequence contains at least a portion of said first and at least a portion of said second sequence of interest as a continuous sequence.